

AMENDMENTS TO THE CLAIMS

1. (Original) A transmitter, comprising:

(a) first and second convolutional encoders;

(b) first and second inputs connected to said first and second convolutional encoders

respectively;

(c) first and second outputs; and

(d) a switch designed to perform the following alternatively during successive baud periods:

(1) connect said first input to said first output through said first convolutional encoder while connecting said second input to said second output through said second convolutional encoder during said baud period; and

(2) connect said first input to said second output through said first convolutional encoder while connecting said second input to said first output through said second convolutional encoder.

2. (Original) The transmitter of claim 1, wherein said first and second convolutional encoders are trellis encoders.

3. (Original) The transmitter of claim 1, wherein said first and second outputs are each wire pairs.

4. (Original) The transmitter of claim 1, wherein said convolutional encoders and said switch are implemented with software that is executed with a processor.

5. (Original) The transmitter of claim 1, further comprising first and second mappers connected between said first and second convolutional encoders and said first and second outputs, respectively, said first and second mappers configured to receive first and second data symbols, respectively, and define therefor first and second pluralities of bits, respectively, said first and second pluralities being equal or different in number so that data rates associated with said first and second outputs can be defined as equal or different.

6. (Original) The transmitter of claim 1, further comprising first and second modulators connected to said first and second convolutional encoders for encoding digital data upon an analog signal for communication onto said first and second outputs, respectively.

7. (Original) The transmitter of claim 1, wherein said first and second inputs are connected to the same data terminal equipment.

8. (Currently Amended) A transmitter, comprising:

means for convolutionally encoding each data stream of a plurality to produce a plurality of convolutionally-encoded data streams;

means for interleaving data segments from said convolutionally encoded data streams to produce a plurality of interleaved convolutionally-encoded data streams; and

means for ~~communicating~~ transmitting said interleaved convolutionally-encoded data streams ~~to~~ onto a plurality of separate communication paths.

9. (Original) The transmitter of claim 8, further comprising first and second pluralities of convolutional encoding means for convolutionally encoding first and second data streams, respectively, so that each of said communicated data streams comprise data segments from each of said convolutional encoding means.

10. (Original) The transmitter of claim 8, wherein said convolutional encoding means is a single convolutional encoder designed to process and encode said plurality of data streams.

11. (Original) The transmitter of claim 8, further comprising a switching means for alternatively performing steps (1) and (2) hereafter during successive baud periods:

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(1) connecting a first input to a first output through a first convolutional encoder while connecting a second input to a second output through a second convolutional encoder during said baud period; and

(2) connecting said first input to said second output through said first convolutional encoder while connecting said second input to said first output through said second convolutional encoder.

12. (Original) The transmitter of claim 11, further comprising:
means for receiving first and second symbols from said first and second outputs, respectively; and

means for independently defining first and second data rates for said first and second outputs by defining first and second pluralities of bits for said first and second symbols, respectively, said first and second pluralities being equal or different in number so that said first and second data rates associated with said first and second outputs can be defined to be equal or different.

13. (Original) The transmitter of claim 8, wherein said convolutional encoding means performs trellis encoding.

14. (Original) The transmitter of claim 8, wherein said separate communication paths are each wire pairs.

15. (Original) The transmitter of claim 8, wherein said convolutional encoding means is implemented with software that is executed with a processing means.

16. (Original) The transmitter of claim 8, further comprising means for independently defining data rates on said paths by separately defining a number of bits for each of said interleaved data segments.

17. (Currently Amended) A method for transmitting data, comprising the steps of:
~~receiving a plurality of data streams;~~

~~convolutionally encoding each of said data streams of said plurality~~ a plurality of data streams to produce a plurality of convolutionally-encoded data streams;

~~interleaving data segments from said convolutionally-encoded~~ convolutionally-encoded data streams to produce a plurality of interleaved convolutionally-encoded data streams; and

transmitting said interleaved convolutionally-encoded data streams onto a plurality of separate communication paths.

18. (Original) The method of claim 17, further comprising the step of convolutionally encoding said plurality of said data streams with greater than two convolutional encoders so that said transmitted data streams comprise data segments from each of said greater than two convolutional encoders.

19. (Original) The method of claim 17, wherein the step for convolutional encoding uses a single convolutional encoder to encode said plurality of data streams.

20. (Original) The method of claim 17, further comprising the steps of:

alternatively performing steps (1) and (2) hereafter during successive baud periods:

(1) connecting a first input to a first output through a first convolutional encoder while connecting a second input to a second output through a second convolutional encoder during said baud period; and

(2) connecting said first input to said second output through said first convolutional encoder while connecting said second input to said first output through said second convolutional encoder.

21. (Original) The method of claim 17, further comprising the steps of:

receiving first and second symbols from said first and second outputs, respectively; and

independently defining first and second data rates for said first and second output by selectively defining first and second pluralities of bits for said first and second symbols, respectively, said first and second pluralities being equal or different in number so that said first and second data rates associated with said first and second output can be defined to be equal or different.

22. (Original) The method of claim 17, wherein said step of convolutional encoding includes the step of performing trellis encoding.

23. (Original) The method of claim 17, wherein said communication paths are each wire pairs.

24. (Original) The method of claim 17, wherein said step of convolutional encoding is implemented with software that is executed with a processor.

25. (Original) The method of claim 17, further comprising the step of independently defining data rates on said paths by separately defining a number of bits for each of said interleaved data segments.

26-52. (Canceled).

53. (Original) A transmitter, comprising:

(a) first and second convolutional encoders;

(b) first and second inputs connected to said first and second convolutional encoders respectively;

(c) first and second outputs; and

(d) a switch designed to perform the following alternatively during successive baud periods:

(1) connect said first input to said first output through said first convolutional encoder while connecting said second input to said second output through said second convolutional encoder during said baud period; and

(2) connect said first input to said first output through said second convolutional encoder while connecting said second input to said second output through said first convolutional encoder.

54. (Canceled).

55. (New) The transmitter of claim 8, wherein each interleaved convolutionally-encoded data stream contains segments from more than one convolutionally-encoded data stream.

56. (New) A transmitter, comprising:
means for convolutionally encoding a data stream;
means for interleaving data segments from said convolutionally encoded data stream; and
means for transmitting said interleaved convolutionally-encoded data stream onto a plurality of separate communication paths.

57. (New) The transmitter of claim 56, further comprising a switching means for alternatively performing steps (1) and (2) hereafter during successive baud periods:

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- (1) connecting a first input to a first output through a convolutional encoder; and
 - (2) connecting said first input to a second output through said convolutional encoder.

58. (New) The transmitter of claim 56, wherein said convolutional encoding means performs trellis encoding.

59. (New) The transmitter of claim 56, wherein said separate communication paths are each wire pairs.

60. (New) The transmitter of claim 56, wherein said convolutional encoding means is implemented with software that is executed with a processing means.

61. (New) A method for transmitting data, comprising the steps of:
convolutionally encoding a data stream;
interleaving data segments from said convolutionally encoded data stream; and
transmitting said interleaved convolutionally-encoded data stream onto a plurality of
separate communication paths.

62. (New) The method claim 61, further comprising the steps of:
alternatively performing steps (1) and (2) hereafter during successive baud periods:
(1) connecting a first input to a first output through a convolutional encoder; and
(2) connecting said first input to a second output through said convolutional encoder.

63. (New) The method of claim 61, wherein said step of convolutional encoding
includes the step of performing trellis encoding.

64. (New) The method of claim 61, wherein said communication paths are each wire
pairs.

65. (New) The method of claim 61, wherein said step of convolutional encoding is
implemented with software that is executed with a processor.
